

## CLAIMS

1. A nicotianamine synthase comprising amino acid sequence shown in SEQ ID NO: 1, or amino acid sequence having deletion in a part thereof, being substituted by the other amino acids or being added with the other amino acids.
2. The nicotianamine synthase according to claim 1 wherein said enzyme is originated from barley.
3. The nicotianamine synthase according to claim 1 or 2 comprising having amino acid sequence shown in SEQ ID NO: 1, 3, 5, 7, 9, 11 or 13.
4. The nicotianamine synthase according to claim 1 wherein said enzyme is originated from Arabidopsis.
5. The nicotianamine synthase according to claim 1 or 4 comprising having amino acid sequence shown in SEQ ID NO: 17, 19 or 21.
6. The nicotianamine synthase according to claim 1 wherein said enzyme is originated from Oryza sativa.
7. The nicotianamine synthase according to claim 1 or 6 comprising having amino acid sequence shown in SEQ ID NO: 15.
8. A gene encoding amino acid sequence of nicotianamine synthase according to any one of claims 1 - 7.
9. The gene according to claim 8 wherein said gene is cDNA.
10. The gene according to claim 8 or 9 comprising having base sequence shown in SEQ ID NO: 2, 4, 6, 8, 10, 12 or 14.
11. The gene according to claim 8 or 9 comprising having base sequence shown in SEQ ID NO: 18, 20 or 22.
12. A vector comprising containing gene according to any one of claims 8 - 11.

13. The vector according to claim 12 wherein said vector is an expression vector.
14. A transformant wherein said transformant is transformed by the vector according to claim 12 or 13.
15. The transformant according to claim 14 wherein the foreign gene is a gene having base sequence shown in SEQ ID NO: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, or 22.
16. The transformant according to claim 14 or 15 wherein the host is bacteria.
17. The transformant according to claim 14 or 15 wherein the host is higher bacteria.
18. A process for production of nicotianamine comprising using the transformant according to any one of claims 14 - 17.
19. A plant wherein the gene according to any one of claims 8 - 10 is introduced.
20. The plant according to claim 19 wherein said plant is seed.
21. A fruit obtained by growing the plant according to claim 19 or 20.
22. An antibody against nicotianamine synthase according to any one of claims 1 - 7.
23. The antibody according to claim 22 wherein said antibody is polyclonal antibody.
24. The antibody according to claim 22 wherein said antibody is monoclonal antibody.
25. A method for extraction of nicotianamine synthase comprising extracting the said enzyme in the presence of thiol protease inhibitor at the extraction of nicotianamine synthase from the plant.
26. The method according to claim 25 wherein the thiol protease inhibitor is E-64.